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Bibliography.

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Summary.

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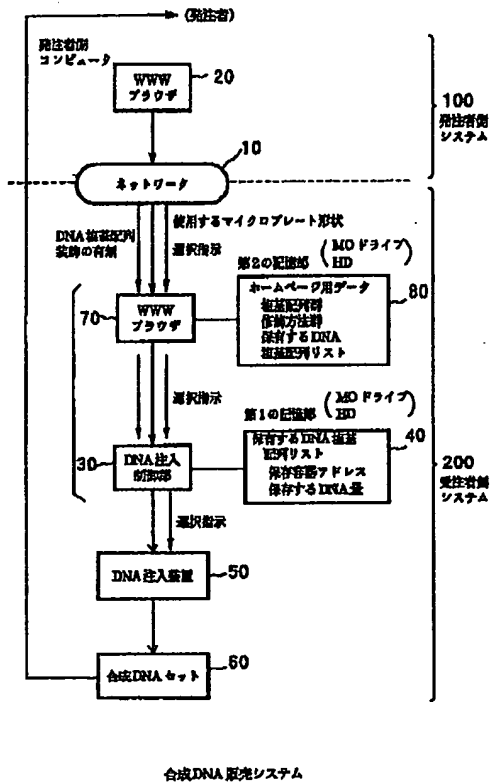
(57) [Abstract]

[Technical problem] The selling system of the synthetic DNA which offers quickly and cheaply DNA of a kind required for each researcher who needs DNA which has the various compound arrays, and an amount is offered.

[Means for Solution] A purchaser orders the DNA set to need through a network, and a successful bidder is chosen from DNA which compounds beforehand the DNA set which received the order and holds it, is produced according to order conditions, and is sent to a purchaser. For a successful bidder, since the DNA set whose order produced the synthetic DNA so much and only the initial complement received to the need and the purchaser can be sent, synthetic yield and refining become easy and a DNA set can be offered cheaply.

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**CLAIMS**

**[Claim(s)]**

[Claim 1] The purchaser side equipment characterized by providing the following and successful-bidder side equipment are the synthetic DNA selling systems connected through a network, and equip the aforementioned purchaser side. The display means on which the interface for order directions is displayed. A determination means by which a purchaser chooses a desired synthetic DNA and determines a synthetic DNA set out of the synthetic DNA which can supply a successful bidder. A generation means to generate ordering

information including the information which shows the aforementioned synthetic DNA set determined by the aforementioned determination means. A transmitting means to transmit the aforementioned ordering information generated by the aforementioned generation means to the aforementioned successful-bidder side equipment, and an output means to output information in order to receive the aforementioned ordering information and to manufacture the aforementioned synthetic DNA set in the aforementioned successful-bidder side equipment based on this ordering information.

[Claim 2] The selling system of the synthetic DNA according to claim 1 characterized by the ability of the aforementioned purchaser to be able to place an order for a desired synthetic DNA by preparing for the aforementioned display means a selection means to choose at least one of the number of the kinds of base sequence of the aforementioned synthetic DNA, the kind of ornamentation of the aforementioned synthetic DNA end, the form of the aforementioned synthetic DNA, or the methods of the aforementioned synthetic DNA array production equipment, and choosing using the aforementioned selection means.

[Claim 3] The selling system of the synthetic DNA according to claim 2 characterized by choosing whether it is \*\*\*\*\* which is in the state where the aforementioned synthetic DNA was filled up with predetermined concentration into the solution of predetermined solution composition or the form of the aforementioned synthetic DNA was in the state which the solution of the aforementioned synthetic DNA was poured into each well on the container divided into two or more wells, and was hardened by drying.

[Claim 4] The aforementioned predetermined solution composition is the selling system of the synthetic DNA according to claim 3 characterized by being composition specified by the aforementioned purchaser.

[Claim 5] The aforementioned predetermined solution composition is the selling system of the synthetic DNA according to claim 3 characterized by including ASECHIRE Norian EH1% 7.5% of ureas, and thiodiglycol 7.5% glycerol 7.5%.

[Claim 6] The aforementioned synthetic DNA set is the selling system of the synthetic DNA according to claim 1 characterized by pouring the synthetic DNA of the aforementioned request into the container divided into two or more wells.

[Claim 7] The selling system of a synthetic DNA according to claim 6 by which the aforementioned container is characterized by being a microplate.

[Claim 8] The selling system of the synthetic DNA according to claim 6 characterized by the aforementioned container being the ink cartridge used for DNA micro array production equipment, or a head for ink jet printers with an ink cartridge.

[Claim 9] The selling system of the synthetic DNA according to claim 1 characterized by to have further a sending means send the solution of Above DNA to the aforementioned purchaser, in the state where of the aforementioned synthetic DNA has been filled up with the concentration directed into the solution of the solution composition whose aforementioned purchaser sends or directs the solution of the aforementioned synthetic DNA to the aforementioned purchaser in the state it is poured into each well on the container divided into two or more wells, and harden by drying.

[Claim 10] The aforementioned determination means is the selling system of the synthetic DNA according to claim 1 characterized by displaying the portion to which it has varied of the base sequences of the aforementioned synthetic DNA to input as a variable.

[Claim 11] The aforementioned determination means is the selling system of the synthetic DNA according to claim 1 characterized by directing arrangement of

the aforementioned synthetic DNA using the appointed area of a container divided into two or more wells.

[Claim 12] The selling system of the synthetic DNA according to claim 11 characterized by having an arrangement number selection means to choose arrangement numbering of two or more aforementioned wells in the appointed area of the aforementioned container.

[Claim 13] It is the selling system of the synthetic DNA according to claim 12 characterized by performing the input of the aforementioned synthetic DNA to the arrangement number chosen by the aforementioned arrangement number selection means using the individual input or formatted input of a base sequence.

[Claim 14] The aforementioned output means is the selling system of the synthetic DNA according to claim 1 characterized by outputting the information for manufacturing the aforementioned synthetic DNA set by pouring the initial complement of the synthetic DNA solution of the aforementioned request into each well on the container divided into two or more wells which drew in to the transfer pipet and were specified to be them based on the aforementioned ordering information.

[Claim 15] The selling system of a synthetic DNA given in any 1 term of the claim 1 characterized by embellishing the end of the aforementioned synthetic DNA with the thiol group, or a claim 14.

[Claim 16] The selling system of a synthetic DNA given in any 1 term of the claim 1 characterized by being the gene to which the aforementioned synthetic DNA participated in man major histocompatibility nature complex (MHC), or a claim 15.

[Claim 17] The selling system of the synthetic DNA according to claim 1 characterized by the ability to choose the synthetic DNA set which the synthetic DNA list which can be supplied is displayed on the aforementioned display means, and is ordered from the synthetic DNA list in which this supply is possible.

[Claim 18] The aforementioned display means is the selling system of the synthetic DNA according to claim 1 characterized by choosing and displaying the synthetic DNA which corresponds out of the memorized DNA list, when the aforementioned purchaser inputs the information about the base sequence of the aforementioned synthetic DNA, and the chemical modification of the aforementioned synthetic DNA.

[Claim 19] Successful-bidder side equipment used for the synthetic DNA selling system to which the purchaser side equipment characterized by providing the following and successful-bidder side equipment are connected through a network. An offer means to provide the aforementioned purchaser side equipment with the interface for order directions. An output means to output information in order to manufacture the aforementioned synthetic DNA set based on this ordering information, if the information which shows the synthetic DNA set formed by two or more aforementioned selected synthetic DNAs is received as ordering information using the interface for the aforementioned order directions.

[Claim 20] In the interface for the aforementioned order directions, the number of the kinds of base sequence of the aforementioned synthetic DNA, By preparing a selection means to choose at least one of the kind of ornamentation of the aforementioned synthetic DNA end, the form of the aforementioned synthetic DNA, or the methods of the aforementioned synthetic DNA array production equipment, and choosing using the aforementioned selection means Successful-bidder side equipment used for the selling system of the synthetic DNA according to claim 19 characterized by the ability of the

aforementioned purchaser to place an order for a desired synthetic DNA.

[Claim 21] Successful-bidder side equipment used for the selling system of the synthetic DNA according to claim 20 characterized by choosing whether it is \*\*\*\*\* which is in the state where the aforementioned synthetic DNA was filled up with predetermined concentration into the solution of predetermined solution composition or the gestalt of the aforementioned synthetic DNA was in the state which the solution of the aforementioned synthetic DNA was poured into each well on the container divided into two or more wells, and was hardened by drying.

[Claim 22] The aforementioned predetermined solution composition is equipped the successful-bidder side used for the selling system of the synthetic DNA according to claim 21 characterized by being composition specified by the aforementioned purchaser.

[Claim 23] The aforementioned predetermined solution composition is equipped the successful-bidder side used for the selling system of the synthetic DNA according to claim 21 characterized by including ASECHIRE Norian EH1% 7.5% of ureas, and thiodiglycol 7.5% glycerol 7.5%.

[Claim 24] Successful-bidder side equipment used for the selling system of the synthetic DNA according to claim 19 characterized by being poured into the container with which the aforementioned synthetic DNA was divided into two or more wells.

[Claim 25] Successful-bidder side equipment used for the selling system of a synthetic DNA according to claim 24 by which the aforementioned container is characterized by being a microplate.

[Claim 26] Successful-bidder side equipment used for the selling system of a synthetic DNA according to claim 25 by which the aforementioned container is characterized by being any one of the ink cartridge used for DNA micro array production equipment, the head for ink jet printers with an ink cartridge, or the microplates.

[Claim 27] The successful-bidder side equipment which uses to the selling system of the synthetic DNA according to claim 19 characterized by to have further a sending means send the solution of the above DNA to the aforementioned purchaser, in the state have filled up the aforementioned synthetic DNA with the concentration which directed into the solution of the solution composition whose aforementioned purchaser sends or directs the solution of the aforementioned synthetic DNA to the aforementioned purchaser in the state it is poured into each well on the container divided into two or more wells, and harden by drying.

[Claim 28] Successful-bidder side equipment used for the selling system of the synthetic DNA according to claim 19 characterized by displaying as a variable the portion to which it has varied of the base sequences of the aforementioned synthetic DNA inputted into the interface for the aforementioned order directions.

[Claim 29] Successful-bidder side equipment used for the selling system of the synthetic DNA according to claim 19 characterized by directing arrangement of the aforementioned synthetic DNA in the interface for the aforementioned order directions using the appointed area of a container divided into two or more wells.

[Claim 30] Successful-bidder side equipment used for the selling system of the synthetic DNA according to claim 29 characterized by having an arrangement number selection means to choose arrangement numbering of two or more aforementioned wells in the appointed area of the aforementioned container.

[Claim 31] It equips the successful-bidder side used for the selling system of the synthetic DNA according to claim 30 characterized by performing the input

of the aforementioned synthetic DNA to the arrangement number chosen by the aforementioned arrangement number selection means using the individual input or formatted input of a base sequence.

[Claim 32] The aforementioned manufacture means is equipped the successful-bidder side used for the selling system of the synthetic DNA according to claim 19 characterized by outputting the information for manufacturing the aforementioned synthetic DNA set by pouring the initial complement of the synthetic DNA solution of the aforementioned request into each well on the container divided into two or more wells which drew in to the transfer pipet and were specified to be them based on the aforementioned ordering information.

[Claim 33] Successful-bidder side equipment used for the selling system of a synthetic DNA given in any 1 term of the claim 19 characterized by embellishing the end of the aforementioned synthetic DNA with the thiol group, or a claim 32.

[Claim 34] Successful-bidder side equipment used for the selling system of a synthetic DNA given in any 1 term of the claim 19 characterized by being the gene to which the aforementioned synthetic DNA participated in man major histocompatibility nature complex (MHC), or a claim 33.

[Claim 35] Successful-bidder side equipment used for the selling system of the synthetic DNA according to claim 19 characterized by the ability to choose the synthetic DNA set which the synthetic DNA list which can be supplied is displayed on the interface for the aforementioned order directions, and is ordered from the synthetic DNA list in which this supply is possible.

[Claim 36] Successful-bidder side equipment used for the selling system of the synthetic DNA according to claim 19 characterized by choosing and displaying the synthetic DNA which corresponds out of the memorized DNA list if the aforementioned purchaser inputs the information about the base sequence of the aforementioned synthetic DNA, and the chemical modification of the aforementioned synthetic DNA into the interface for the aforementioned order directions.

[Claim 37] Successful-bidder side equipment used for the synthetic DNA selling system to which the purchaser side equipment characterized by providing the following and successful-bidder side equipment are connected through a network. An offer means to offer the interface for order directions which has a selection means to choose at least one of the number of the kinds of base sequence of a synthetic DNA, the kind of ornamentation of the aforementioned synthetic DNA end, the form of the aforementioned synthetic DNA, or the methods of the aforementioned synthetic DNA array production equipment as the aforementioned purchaser side equipment. A receiving means to receive the information which shows the synthetic DNA set formed by two or more aforementioned selected synthetic DNAs using the interface for the aforementioned order directions as ordering information.

[Claim 38] The purchaser side equipment characterized by providing the following and successful-bidder side equipment are the control methods of the synthetic DNA selling system connected through a network, and equip the aforementioned purchaser side. The display process on which the interface for order directions is displayed. The determination process as which a purchaser chooses a desired synthetic DNA and determines a synthetic DNA set out of the synthetic DNA which can supply a successful bidder. The generation process which generates ordering information including the information which shows the aforementioned synthetic DNA set determined according to the aforementioned determination process. The transmitting process which transmits the aforementioned ordering information generated by the aforementioned generation

process to the aforementioned successful-bidder side equipment, and the output process which outputs the information for receiving the aforementioned ordering information and manufacturing the aforementioned synthetic DNA set in the aforementioned successful-bidder side equipment based on this ordering information.

[Claim 39] The control method of the successful-bidder side equipment used for the synthetic DNA selling system to which the purchaser side equipment characterized by providing the following and successful-bidder side equipment are connected through a network. The offer process which provides the aforementioned purchaser side equipment with the interface for order directions. The output process which outputs the information for manufacturing the aforementioned synthetic DNA set based on this ordering information if the information which shows the synthetic DNA set formed by two or more aforementioned selected synthetic DNAs is received as ordering information using the interface for the aforementioned order directions.

[Claim 40] The control method of the successful-bidder side equipment used for the synthetic DNA selling system to which the purchaser side equipment characterized by providing the following and successful-bidder side equipment are connected through a network. The offer process which offers the interface for order directions which has a selection means to choose at least one of the number of the kinds of base sequence of a synthetic DNA, the kind of ornamentation of the aforementioned synthetic DNA end, the form of the aforementioned synthetic DNA, or the methods of the aforementioned synthetic DNA array production equipment as the aforementioned purchaser side equipment. The receiving process which receives the information which shows the synthetic DNA set formed by two or more aforementioned selected synthetic DNAs using the interface for the aforementioned order directions as ordering information.

[Claim 41] It is the storage which stored the program which controls the synthetic DNA selling system to which the purchaser side equipment characterized by providing the following and successful-bidder side equipment are connected through a network, and the aforementioned control program is equipped the aforementioned purchaser side. The code of the display process on which the interface for order directions is displayed. The code of a determination process in which a purchaser chooses a desired synthetic DNA and determines a synthetic DNA set out of the synthetic DNA which can supply a successful bidder. The code of the generation process which generates ordering information including the information which shows the aforementioned synthetic DNA set determined according to the aforementioned determination process. The transmitting process code which transmits the aforementioned ordering information generated by the aforementioned generation process to the aforementioned successful-bidder side equipment, and the manufacturing process code which receives the aforementioned ordering information and manufactures the aforementioned synthetic DNA set in the aforementioned successful-bidder side equipment based on this ordering information.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to a storage at the selling system of the synthetic DNA using the network and its control method, successful-bidder side equipment, and the sales method row of the control method synthetic DNA.

[0002]

[Description of the Prior Art] DNA can be compounded now comparatively easily with development of an DNA synthesizer, and the composition of DNA which has arbitrary arrays was also attained. However, in order to compound DNA which has various arrays, various synthetic reagents are required.

[0003] These reagents need to carry out small quantity [ every ] multi-form use of the reagent different, respectively, in order to compound DNA which has expensive various arrays nevertheless. Therefore, it may be [ having purchased the reagent for DNA synthesis, having placed an order for DNA required for the special company which is manufacturing and selling DNA rather than it carries out chemosynthesis of the DNA of an initial complement personally, and having purchased ] compoundable at a low price [ direction ].

[0004] With the movement of the worldwide project that all Homo sapiens's gene sequences will be decoded in recent years, the technique of a DNA array attracts attention and various kinds of methods are developed as the manufacture method.

[0005] It is developed in order to perform quickly and correctly detection of a nucleic acid made into the determination of the base sequence of a nucleic acid, or the target in a sample, and identification of various bacteria, and to judge the existence of the gene of many items, and the variation of a gene on the same glass substrate, and on the glass substrate of a DNA array, the DNA probe of varieties is combined with the DNA array with high density. This DNA probe is matter specifically combined with a target nucleic acid, and the base sequence of a gene is identified by the DNA-hybridization method using this DNA array.

[0006] It roughly divides into the process of a DNA array, and there are two kinds of processes.

[0007] The 1st process compounds DNA on a glass substrate, and SAZAN and others first developed the method of producing the probe with which one base of arrays differed at a time on the same glass substrate (Nucleic Acids Research, the 22nd volume, 1368 pages (1994)). Next, AFIMETO Rix applied the method of photo lithography, the reaction with which a nucleotide is made to connect on a glass substrate was repeated, DNA of 15 base length was compounded, and the DNA array which has arranged 400,000 sorts of DNA probes to the substrate of a 1/2 inch angle was produced (a science (Science), the 274th volume, 610 pages (1996)).

*Offymete*

[0008] The 2nd process is a method which supplies DNA compounded beforehand at a spot (one drop) on a glass substrate, is fixed and produces a DNA array. Attention is attracted as a method also with the simple method (JP, 11-187900, A) which there is a method (a science (Science), 270 p 467 pages (1995)) of arranging comparatively long cDNA in the shape of an array, and uses an synthetic oligonucleotide as a probe by micro pipetting as an example of this method.

[0009] In case DNA is produced using a DNA automatic composition machine, in order that a synthetic reaction may not progress at 100% of efficiency, in the case of the synthetic reaction of DNA using the nucleotide, an unreacted object will surely remain. Therefore, in DNA after a synthetic reaction, DNA shorter than DNA of the desired length will exist. In order to compound DNA on a glass substrate, when separation of an unreacted object is the 1st difficult process, this produces heterogeneity to the probe concentration on a DNA array, and means affecting fixed quantity nature to it.

[0010] However, in the case of the 2nd process which fixes DNA on glass after compounding with an automatic composition machine beforehand, since refining of the unreacted object after compounding DNA is possible, the probe which has DNA of the desired length can be arranged on a DNA array by equal concentration.

[0011] From this, the precision of the DNA array produced by the 2nd process of a high buri die ZESHOSHI reaction improves compared with the DNA array produced by the 1st process. In addition, as a method of supplying the DNA probe by which chemosynthesis was carried out to a DNA array, the micro spotting method by the pin etc., the ink-jet method, etc. are mentioned.

[0012] Moreover, the 2nd process which fixes DNA on a glass substrate after DNA synthesis is flexible at the point which can arrange the probe which has arbitrary base sequences on a DNA array in arbitrary positions, and it is thought that it is simple since there are few production processes compared with photolithography 1 method, and production cost is also held down low. However, when DNA is actually fixed by the above-mentioned fixed method, the point that it is necessary to purchase the synthetic powder of expensive varieties, and synthetic cost increases in order to compound DNA, and the point of requiring working hours remarkable by refining from composition of DNA further are problems.

[0013] Although the kind of DNA which an artificer needs for DNA array production was huge, it noted that the amount of each DNA used was small. For example, volume required to constitute one spot from a DNA array production method (JP, 11-187900, A) by the ink-jet method which the artificer developed is pico liter (pl) order (1pl is ten to 12 l.). For example, even if it produces 1 million every 50 pls DNA solutions of 8micro M concentration, the required amount of probe DNA is set only to 50microl (40 picomoles) about each array.

[0014] Since the amount of DNA used is the drop of nano liter order, if it has DNA of ten microliter also by the case of the DNA array production method by the micro spotting method by the pin etc., the array of 10,000 sheets will be produced.

[0015] However, in order to compound DNA required for the above-mentioned use, it is necessary to compound DNA of 100 times or more of the amount used also at the lowest. Moreover, it is necessary to refine compound DNA, and in order to check that refining of compound DNA is performed as predetermined, it is necessary to analyze by the high performance chromatography.

[0016] Therefore, the amount of DNA which the amount detectable by the high performance chromatography refined is the minimum required unit of DNA, and it becomes the smallest unit which can deal with the concentration which can

carry out a fixed quantity by absorption etc. That is, to the analysis for checking that not the amount of DNA used by the above-mentioned micro spotting method but compound refining of DNA is performed as predetermined, since the amount of DNA required for DNA array production is a complement, it must compound a lot of DNA far compared with the amount used.

[0017] On the other hand, by JP,11-187900,A, the method of using the maleimide machine on a substrate and the thiol group of a DNA end is indicated as the production method of a DNA array that the DNA probe was fixed on the glass substrate. The reaction using these functional groups is extremely known as a method by which reaction time is short and it was [ reaction efficiency was also good and ] further suitable for the ink-jet method. Moreover, there is an indication of the solution containing ASECHIRE Norian EH1% -7.5% of ureas, a thiodiglycol 7, and 5% glycerol 7.5% as composition of the DNA solution suitable for the reaction.

[0018] Furthermore, although the set of all genes, such as an oncogene, is possible for the base sequence of the DNA array used for gene diagnosis, the base sequence of major histocompatibility nature complex (MHC:major histocompatibility complex) is clarified recently (923 Nature vol 401, p921-1999).

[0019] This array is the field which the gene of an immune system concentrated most in the human genome, and since it is applicable to the judgment of the body which is easy to become sick, and an allergy body, it is an array which attracts attention as an object of gene diagnosis.

[0020]

[Problem(s) to be Solved by the Invention] Since the experiment scale is becoming small every year as for the various experiments which use not only a DNA array but DNA, the amount of DNA required for an experiment tends to decrease further. However, since the amount of DNA required for each experiment needs to compound a lot of [ as mentioned above ] DNA in order for synthetic yield to obtain high and high grade DNA although it is decreasing, the present condition is that the experiment which cannot reduce the purchase costs of the reagent which is a synthetic powder, but uses DNA has taken the useless costs and the synthetic time for compounding DNA too much.

[0021] And since the various experiments which use DNA will tend to increase from now on, the present condition is having disposed of DNA of most which each researcher in the world is inquiring using DNA of the same array compounded needed DNA of the same array in large quantities, and was not used for the experiment.

[0022] Although lessening the composite quantity of DNA is mentioned as one of the methods of solving this problem, there is a limit in making small the amount of DNA which each researcher compounds according to the experiment scale which uses DNA for the reason as mentioned above (for example, compounded in order to check the purity of DNA which very many amounts of DNA compounded compared with the actually used amount of DNA).

[0023] The loss moreover according with the composition yield of DNA with it more sufficient [ to have collected rather than it compounded DNA which each researcher needs, respectively since the loss according with synthetic yield with it more sufficient / for a scale with big chemosynthesis to perform generally on the other hand / to refining etc. also decreases, and to compound DNA ] to refining also decreases, and a manufacturing cost can also be reduced.

[0024] Made in order that this invention may solve the above-mentioned trouble, the purpose is offering the selling system of the synthetic DNA offered quickly [ a kind and an amount required for each researcher who needs

DNA which has the various compound arrays ], and cheaply and its control method, successful-bidder side equipment, and its control method.

[0025]

[Means for Solving the Problem] The synthetic DNA selling system which is 1 operation form of this invention for attaining the above-mentioned purpose is equipped with the following composition. Namely, are the synthetic DNA selling system to which purchaser side equipment and successful-bidder side equipment are connected through a network, and it sets to the aforementioned purchaser side equipment. A determination means by which a purchaser chooses a desired synthetic DNA and determines a synthetic DNA set out of the display means on which the interface for order directions is displayed, and the synthetic DNA which can supply a successful bidder, In a generation means to generate ordering information including the information which shows the aforementioned synthetic DNA set determined by the aforementioned determination means, a transmitting means to transmit the aforementioned ordering information generated by the aforementioned generation means to the aforementioned successful-bidder side equipment, and the aforementioned successful-bidder side equipment In order to receive the aforementioned ordering information and to manufacture the aforementioned synthetic DNA set based on this ordering information, it is characterized by having an output means to output information.

[0026] Moreover, the aforementioned purchaser is characterized by the ability to order a desired synthetic DNA by, preparing for the aforementioned display means a selection means to choose at least one of the number of the kinds of base sequence of the aforementioned synthetic DNA, the kind of ornamentation of the aforementioned synthetic DNA end, the gestalt of the aforementioned synthetic DNA, or the methods of the aforementioned synthetic DNA array production equipment, for example, and choosing using the aforementioned selection means.

[0027] Moreover, it is characterized by, for example, choosing whether it is \*\*\*\*\* which is in the state where the aforementioned synthetic DNA was filled up with predetermined concentration into the solution of predetermined solution composition or the gestalt of the aforementioned synthetic DNA was in the state which the solution of the aforementioned synthetic DNA was poured into each well on the container divided into two or more wells, and was hardened by drying.

[0028] Moreover, for example, the aforementioned predetermined solution composition is characterized by being composition specified by the aforementioned purchaser.

[0029] Moreover, for example, the aforementioned predetermined solution composition is characterized by including ASECHIRE Norian EH1% 7.5% of ureas, and thiodiglycol 7.5% glycerol 7.5%.

[0030] Moreover, for example, the aforementioned synthetic DNA set is characterized by pouring the synthetic DNA of the aforementioned request into the container divided into two or more wells.

[0031] Moreover, for example, the aforementioned container is characterized by being a microplate.

[0032] Moreover, for example, the aforementioned container is characterized by being the ink cartridge used for DNA micro array production equipment, or a head for ink jet printers with an ink cartridge.

[0033] Moreover, it is characterized by to have further a sending means send the solution of Above DNA to the aforementioned purchaser, in the state where of the aforementioned synthetic DNA has been filled up with the concentration directed into the solution of the solution composition whose aforementioned

purchaser sends or directs the solution of the aforementioned synthetic DNA to the aforementioned purchaser in the state of it being poured into each well on the container divided into two or more wells, and, for example, hardening by drying.

[0034] Moreover, for example, the aforementioned determination means is characterized by displaying the portion to which it has varied of the base sequences of the aforementioned synthetic DNA to input as a variable.

[0035] Moreover, for example, the aforementioned determination means is characterized by directing arrangement of the aforementioned synthetic DNA using the appointed area of a container divided into two or more wells.

[0036] Moreover, it is characterized by having an arrangement number selection means to, choose arrangement numbering of two or more aforementioned wells in the appointed area of the aforementioned container for example.

[0037] Moreover, it is characterized by, for example, performing the input of the aforementioned synthetic DNA to the arrangement number chosen by the aforementioned arrangement number selection means using the individual input or formatted input of a base sequence.

[0038] Moreover, for example, the aforementioned output means is characterized by outputting the information for manufacturing the aforementioned synthetic DNA set by pouring the initial complement of the synthetic DNA solution of the aforementioned request into each well on the container divided into two or more wells which drew in to the transfer pipet and were specified to be them based on the aforementioned ordering information.

[0039] Moreover, for example, it is characterized by embellishing the end of the aforementioned synthetic DNA with the thiol group.

[0040] Moreover, for example, the aforementioned synthetic DNA is characterized by being the gene which participated in Homo sapiens major histocompatibility nature complex (major histocompatibility complex).

[0041] Moreover, for example, the synthetic DNA list which can be supplied is displayed on the aforementioned display means, and it is characterized by the ability to choose the synthetic DNA set ordered from the synthetic DNA list in which this supply is possible.

[0042] Moreover, for example, the aforementioned display means will be characterized by choosing and displaying the synthetic DNA which corresponds out of the memorized DNA list, if the aforementioned purchaser inputs the information about the base sequence of the aforementioned synthetic DNA, and the chemical modification of the aforementioned synthetic DNA.

[0043] The successful-bidder side equipment used for the synthetic DNA selling system which is 1 operation ~~gestalt~~ of this invention for attaining the above-mentioned purpose is equipped with the following composition. Namely, an offer means to be successful-bidder side equipment used for the synthetic DNA selling system to which purchaser side equipment and successful-bidder side equipment are connected through a network, and to provide the aforementioned purchaser side equipment with the interface for order directions, An output means to output information in order to manufacture the aforementioned synthetic DNA set based on this ordering information, if the information which shows the synthetic DNA set formed by two or more aforementioned selected synthetic DNAs is received as ordering information using the interface for the aforementioned order directions, It is characterized by \*\*\*\*\*.

[0044] The successful-bidder side equipment used for the synthetic DNA selling system which is 1 operation form of this invention for attaining the above-mentioned purpose is equipped with the following composition. Namely, it is successful-bidder side equipment used for the synthetic DNA selling system to which purchaser side equipment and successful-bidder side equipment are

connected through a network. The kind of ornamentation of the number of the kinds of base sequence of a synthetic DNA, and the aforementioned synthetic DNA end to the aforementioned purchaser side equipment, An offer means to offer the interface for order directions which has a selection means to choose at least one of the form of the aforementioned synthetic DNA, or the methods of the aforementioned synthetic DNA array production equipment, It is characterized by having a receiving means to receive the information which shows the synthetic DNA set formed by two or more aforementioned selected synthetic DNAs as ordering information, using the interface for the aforementioned order directions.

[0045] The control method of the synthetic DNA selling system which is 1 operation form of this invention for attaining the above-mentioned purpose is equipped with the following composition. Namely, are the control method of a synthetic DNA selling system that purchaser side equipment and successful-bidder side equipment are connected through a network, and it sets to the aforementioned purchaser side equipment. The determination process as which a purchaser chooses a desired synthetic DNA and determines a synthetic DNA set out of the display process on which the interface for order directions is displayed, and the synthetic DNA which can supply a successful bidder, In the generation process which generates ordering information including the information which shows the aforementioned synthetic DNA set determined according to the aforementioned determination process, the transmitting process which transmits the aforementioned ordering information generated by the aforementioned generation process to the aforementioned successful-bidder side equipment, and the aforementioned successful-bidder side equipment The aforementioned ordering information is received and it is characterized by having the output process which outputs the information for manufacturing the aforementioned synthetic DNA set based on this ordering information.

[0046] The control method of the successful-bidder side equipment used for the synthetic DNA selling system which is 1 operation form of this invention for attaining the above-mentioned purpose is equipped with the following composition. Namely, the offer process which is the control method of the successful-bidder side equipment used for the synthetic DNA selling system to which purchaser side equipment and successful-bidder side equipment are connected through a network, and provides the aforementioned purchaser side equipment with the interface for order directions, The output process which will output the information for manufacturing the aforementioned synthetic DNA set based on this ordering information if the information which shows the synthetic DNA set formed by two or more aforementioned selected synthetic DNAs is received as ordering information using the interface for the aforementioned order directions, It is characterized by \*\*\*\*\*.

[0047] The control method of the successful-bidder side equipment used for the synthetic DNA selling system which is 1 operation form of this invention for attaining the above-mentioned purpose is equipped with the following composition. Namely, it is the control method of the successful-bidder side equipment used for the synthetic DNA selling system to which purchaser side equipment and successful-bidder side equipment are connected through a network. The kind of ornamentation of the number of the kinds of base sequence of a synthetic DNA, and the aforementioned synthetic DNA end to the aforementioned purchaser side equipment, The form of the aforementioned synthetic DNA, or the offer process which offers the interface for order directions which has a selection means to choose at least one of the methods of the aforementioned synthetic DNA array production equipment, It is characterized by having the receiving process which receives the information

which shows the synthetic DNA set formed by two or more aforementioned selected synthetic DNAs as ordering information using the interface for the aforementioned order directions.

[0048] The storage which is 1 operation form of this invention for attaining the above-mentioned purpose is equipped with the following composition. Namely, are the storage which stored the program which controls the synthetic DNA selling system to which purchaser side equipment and successful-bidder side equipment are connected through a network, and the aforementioned control program is set to the aforementioned purchaser side equipment. The determination process as which a purchaser chooses a desired synthetic DNA and determines a synthetic DNA set out of the display process on which the interface for order directions is displayed, and the synthetic DNA which can supply a successful bidder. In the generation process which generates ordering information including the information which shows the aforementioned synthetic DNA set determined according to the aforementioned determination process, the transmitting process which transmits the aforementioned ordering information generated by the aforementioned generation process to the aforementioned successful-bidder side equipment, and the aforementioned successful-bidder side equipment The aforementioned ordering information is received and it is characterized by having the manufacturing process which manufactures the aforementioned synthetic DNA set based on this ordering information.

[0049]

[Embodiments of the Invention] Below, with reference to a drawing, the gestalt of the 1 operation concerning this invention is explained. However, although the gestalt of this operation explains as a selling system of a synthetic DNA, it is not the thing of the meaning which limits the range of this invention to a written example.

[0050] [Selling system of synthetic DNA] drawing 1 is the block diagram showing the component used for the selling system of a synthetic DNA, 100 is a system by the side of a purchaser, 200 is a system by the side of a successful bidder, and both systems are connected to the network 10 by the protocol of the Internet.

[0051] First, production of a synthetic DNA and the outline of a delivery system are explained using drawing 1. A purchaser transmits the order of the synthetic DNA which he wishes to the system 200 by the side of the successful bidder which is a successful bidder through a network 10 from the system 100 by the side of a purchaser. A successful bidder will send the DNA array which produced the DNA array of the array ordered according to the order of a purchaser, and was produced in the home delivery (registered trademark) to the purchaser, if the system 200 by the side of a successful bidder receives the order signal from the system 100 by the side of a purchaser.

[0052] Here, a successful bidder is for example, a DNA synthesis company or a chemical company, and purchasers are the medicine and the physicochemistry device selling company which produces and sells a DNA array using the researcher and synthetic DNA probe which use a synthetic DNA, a chemical company, a medicine manufacture company, etc.

[0053] Next, the system 100 by the side of a purchaser and the system 200 by the side of a successful bidder are explained in detail. The system 100 by the side of a purchaser is constituted by WWW browser equipment 20. As WWW browser equipment 20, the general-purpose system which installed WWW browser software can be used for a commercial general-purpose personal computer as it is, and this general-purpose system can be used for it as a purchaser side computer.

[0054] Therefore, what is necessary is to prepare neither special exclusive hardware nor exclusive software, to connect with a network 10, and just to use

ordered in the well specified by the initial complement and the purchaser, and it is sent to a purchaser. A synthetic DNA is sent as the state hardened by drying in the container, or a specified solution.

[0065] Although the following explanation explains the case of being required for DNA micro array production, as an example of synthetic DNA sale, synthetic DNA sale was not restricted to this use, and can be sold to any uses which need a synthetic DNA.

[0066] Referring to drawing 3 - drawing 16 using the flow chart of [order of a synthetic DNA and acquisition] next drawing 2 A, and drawing 2 B, by the selling system of a synthetic DNA shown in drawing 1, the synthetic DNA in which a purchaser has a desired base sequence is ordered, and process until the ordered synthetic DNA comes to hand is explained.

[0067] However, the following explanation explains the case where a purchaser places an order for DNA of the base sequence of 64 sorts of \*\*\*\*\* with a number with a synthetic DNA set to 1-64 by which chemical modification of all the five prime ends of DNA which shows an example is carried out to drawing 5 by the sulfhydryl group. In addition, DNA of 64 sorts of these base sequences is carried out [ that a successful bidder can be supplied and ].

[0068] Moreover, with this operation gestalt, a purchaser numbers each 64 well in the appointed area on the microplate which is shown in drawing 3 and to wish (8x8), as shown in drawing 3. numbering \*\*\*\* each of this well — drawing 5 — numbering \*\*\*\*\* — DNA of the same number — respectively — 0.0750D(s) (10D) When DNA is dissolved in 1ml, the synthetic DNA set with which it is prepared by the unit 260nm absorption intensity indicates 10D to be, and the state where filled up every and DNA was hardened by drying shall be ordered.

[0069] As an example is shown in drawing 16, the thiol ornamentation DNA probe which carried out chemical modification of the thiol group to the end of DNA as another example Moreover, glycerol 7.5wt%, It dissolves in the solution containing ASECHIRE Norian EH(Kawamura fine chemicals)1wt% thiodiglycol 7.5wt% urea 7.5wt%. By supplying by the ink-jet method on the glass substrate which inserted the maleimide machine in the front face beforehand also explains the case where a purchaser places an order for the DNA array to which the probe was fixed by covalent bond.

[0070] In addition, when the synthetic DNA for a purchaser placing an order wants to know whether it can supply by the successful bidder as mentioned above, it can know in the following procedures. That is, the data about the kind of the existence of the chemical modification in the length of the base sequence of DNA which the successful bidder holds as data for homepages, and the base sequence of DNA, and the base sequence of DNA, and base sequence of DNA etc. are carried by the storage 80 of a successful bidder as a list.

[0071] Reference by the name of the reference by the alphabetical order or reference by the name of the protein in which each gene carries out a code, and the base sequence set established as a probe for gene diagnoses etc. is possible for the base sequence of the above-mentioned DNA respectively, and when a purchaser accesses the WWW server 70 of a successful bidder through a network 10, it is set up so that it can refer to various standpoints from a homepage. For example, as shown in drawing 17, the base sequence of a DNA set to wish is inputted according to directions of the homepage offered by the storage 80 of a successful bidder shown in 171 to know whether DNA setting [ to wish ] can supply by the successful bidder.

[0072] When the base sequence name of a DNA set for which it wishes is known beforehand, it can input by choosing the selection method for which it wishes from 172-174. For example, what is necessary is to choose 172 to carry out the

alphabet input of the base sequence, to choose 173 to input the name of the protein in which a gene carries out a code, and just to choose 173 to input the name of the base sequence set established as a probe for gene diagnoses. [0073] Moreover, what is necessary is just to choose 175, in wanting you to display the list of DNA sets to hold, when the base sequence name of a DNA set for which it wishes is unknown.

[0074] Drawing 18 shows the screen when the list display of the DNA set which 175 holds by drawing 17 is chosen. That is, the base sequence list for gene diagnoses is displayed on 182, and the base sequence list is shown for the proteinic namelist to 183 by 181. Then, a purchaser can receive the base sequence list shown in drawing 5 by inputting DNA setting [ to wish ] according to directions of 184.

[0075] Moreover, the information on the kind of microplate which was suitable for the method of various kinds of DNA array production equipments as a container divided into two or more wells is memorized by the storage 80 of a successful bidder. For example, if a purchaser chooses the microplate suitable for the DNA array production equipment of a pin method from a homepage, it is set up so that it can specify into which well DNA of the base sequence chosen from the list of the storage 80 of a successful bidder is poured. The microplate of 128 holes by B company is shown in drawing 3 as an example of a microplate. Moreover, some patterns arranged to a microplate are memorized to the probe set for gene diagnoses, and the purchaser is set up so that it may be selectable.

[0076] Moreover, if a purchaser chooses the microplate suitable for the DNA array production equipment of an ink-jet method from a homepage similarly, the data about the information on the kind of ink cartridge and the kind of head with a cartridge and the coordinate of each ink cartridge are memorized by the storage 80 of a successful bidder, and the purchaser is set to it so that it may be selectable.

[0077] First, in Step S100, if a purchaser accesses the homepage of a successful bidder from WWW browser equipment 20, the synthetic DNA order screen shown in drawing 6 or drawing 14 will be displayed. A purchaser inputs the method of the base sequence of DNA to order, the kind of ornamentation of an end, the gestalt of DNA, the amount of DNA, and DNA array production equipment.

[0078] Drawing 6 shows an example of the content ordered by the purchaser. That is, the case where 64 sorts were chosen, SH and the five prime end were chosen, hardening by drying was chosen as a gestalt of DNA shown in 53, and 0.0750D(s) are chosen as an amount of DNA shown in 54 as a kind of ornamentation of the end shown in 52 as a kind of DNA which is shown in 51 and to order is shown. Moreover, the case where a pin method is chosen is shown as a method of the DNA array production equipment shown in 55.

[0079] Moreover, drawing 14 shows an example of the contents ordered by the purchaser like drawing 6, and the kind of DNA, the kind of ornamentation of an end, and the amount of DNA are the same as drawing 6. However, the form of DNA shown in 53 shows the case where an ink-jet method is chosen, as a method of a solution and the DNA array production equipment shown in 55.

[0080] Next, at Step S100, if a purchaser places an order for a synthetic DNA on condition that either drawing 6 or drawing 14, it will progress to Step S110. At Step S110, the method of the ordered DNA array production equipment is investigated, when the pin method shown in drawing 6 is chosen, it progresses to Step S120, and when the ink-jet method shown in drawing 14 is chosen, it progresses to Step S250 shown in drawing 2 B.

[0081] Next, the screen shown in drawing 7 is expressed as Step S120. Drawing

7 shows the order conditions and microplate selection screen which were chosen by the purchaser.

[0082] Namely, as for the order conditions as which 61 of the screen of drawing 7 was chosen, the kind of ornamentation of the kind of DNA of 64 sorts and an end shows [ the form of SH, a five prime end, and DNA / hardening by drying and each amount of DNA / the method of 0.0750D(s) and DNA array production equipment ] that the pin method was chosen. Next, a purchaser is 62 of the screen of drawing 7 and chooses the kind of microplate used for a pin method. The example of drawing 7 shows the case where 128 wells of B company are chosen.

[0083] Next, the screen shown in drawing 8 or drawing 11 is expressed as Step S130. 71 of drawing 8 or drawing 11 displays the microplate chosen by the purchaser, and shows selection of the area which arranges 64 sorts of DNA, and the input screen of arrangement.

[0084] Next, a purchaser specifies first the area which arranges 64 sorts of DNA in the screen of 71 of drawing 8 or drawing 11 according to directions of a screen. For example, the well (8x8) of 64 shown in 72 of drawing 8 or drawing 11 is specified. Moreover, what is necessary is just to specify the area (for example, 8x10) of a required well, in wishing arrangement of different DNA from 64 sorts (for example, 80). Next, the input method 73 of arrangement is chosen. The example of drawing 8 shows the case where an individual input is chosen, as the input method 73 of arrangement. Moreover, the example of drawing 11 shows the case where formatted input is chosen, as the input method 73 of arrangement.

[0085] Next, the selected input method is investigated at Step S140. When the formatted input shown in drawing 11 as an input method progressed and chosen as Step S150 when the individual input shown in drawing 8 as a selected input method was chosen is chosen, it progresses to Step S200.

[0086] Next, the screen shown in drawing 9 is expressed as Step S150. 91 of drawing 9 displays the area set up at Step S130 for arranging 64 sorts of DNA chosen by the purchaser, and 92 of drawing 9 shows the selection screen of how to arrange a number to 64 wells in area.

[0087] Next, a purchaser chooses how the number to 64 wells is arranged from arrangement 1-3 according to directions of the selection screen of 92 of drawing 9.

[0088] the turn that arrangement 1 is shown in drawing at 64 wells (eight line x8 train) — numbering \*\*\*\*\* That is, the number to No. 1-8 is attached to the right from the left, the number to No. 9-16 is similarly attached to the right from the left, and like the following, as shown in drawing at 64 wells, the number of 64 pieces is attached to the well which is eight of the 2nd line at eight wells of the 1st line.

[0089] the turn that similarly arrangement 2 shows arrangement 1 in drawing at 64 wells (eight line x8 train) — numbering \*\*\*\*\* That is, the number to No. 1-4 is attached to the right from the left from the left of the 1st line at four wells, and the number to No. 29-32 is attached to four wells on the right from the left from the left of the 8th line like the following.

[0090] Moreover, the number to No. 33-36 is attached to the right from the left from the left of the 1st line at 5-8 wells, and the number to No. 61-64 is attached to 5-8 wells on the right from the left from the left of the 8th line like the following.

[0091] the turn that similarly arrangement 3 is shown in drawing at 64 wells (eight line x8 train) — numbering \*\*\*\*\* That is, the number to No. 1-8 is attached downward from the top, the number to No. 9-16 is attached downward from the top, and like the following, as shown in drawing at 64 wells, the

number of 64 pieces is attached to the well which is eight of eye the 2nd train at eight wells of eye the 1st train.

[0092] In addition, although the above-mentioned arrangement shows the example of 64 cases, when the kind (it is ten line x8 train etc. in the area of drawing 8) of DNA which changes with purchasers is set up, they are able for the number and number of the well of arrangement 1 - arrangement 3 to change, and to be displayed according to the selected area. (For example, when ten line x8 train is chosen in the area of drawing 8, the number of the 1st line of arrangement 1 changes to 1-10) In the example of drawing 9, the purchaser shows the case where arrangement 2 is chosen.

[0093] Next, at Step S160, the arrangement chosen by the purchaser is investigated, when arrangement 2 is chosen among the arrangement 1-3 of drawing 9, it progresses to Step S180, when arrangement 1 is chosen, it progresses to Step S170, and when arrangement 3 is chosen, it progresses to Step S190.

[0094] Next, the screen shown in drawing 10 is expressed as Step S180. The screen where 1-64 require an input for the kind (base sequence) of DNA with which the example of arrangement of a \*\*\*\*\* well with a number is displayed, and 102 fills it up at each well in order of 1-64 is displayed on the arrangement 1 as which 101 of drawing 10 was chosen.

[0095] A purchaser inputs 64 sorts of base sequences shown in each number of "1" - "64" of 102 at drawing 5 one by one, and specifies DNA with which each well of arrangement 1 is filled up.

[0096] For example, 64 sorts of DNA with which each well of arrangement 1 is filled up is specified by inputting the 1st "SH-GATGGGACTCAAGTTCAT" of drawing 5 in the 1st [ which is shown in 102 / "the 1st" ] watch, inputting the 2nd "SH-GATGGGACTCAGTTTCAT" of drawing 5 in the "2nd" watch, and inputting like the following.

[0097] However, in order that the input method may not be restricted to the above-mentioned method, for example, may simplify an input, when the number "1" of the 1st base sequence of drawing 5 is inputted in the 1st [ which is shown in 102 / "the 1st" ] watch, "SH-GATGGGACTCAAGTTCAT" which is the 1st base sequence of drawing 5 may be made to be displayed. After all the inputs of 64 sorts of DNA are completed, it progresses to Step S220.

[0098] Moreover, in Step S160, when arrangement 1 is chosen, it progresses to Step S170. Although drawing is omitted, it expresses the well by which No. 1-64 was attached to the arrangement 2 chosen by drawing 9 like 101 of drawing 10 as Step S170. Furthermore, the screen which requires the input of the kinds (base sequence) 1-64 of DNA with which each well shown in 102 of drawing 10 is filled up is displayed.

[0099] A purchaser progresses to Step S220, after inputting 64 sorts of base sequences shown in each number of 1-64 which are shown in 102 like drawing 10 at drawing 5 one by one, specifying DNA with which each well of arrangement 1 is filled up and completing all inputs.

[0100] Furthermore, in Step S160, when arrangement 3 is chosen, it progresses to Step S190. Although drawing is omitted, it expresses the well by which No. 1-64 was attached to the arrangement 2 chosen by drawing 9 like 101 of drawing 10 as Step S190. Furthermore, the screen which requires the input of the kinds (base sequence) 1-64 of DNA with which each well shown in 102 of drawing 10 is filled up is displayed.

[0101] A purchaser progresses to Step S220, after inputting 64 sorts of base sequences shown in each number of 1-64 which are shown in 102 like drawing 10 at drawing 5 one by one, specifying DNA with which each well of arrangement 1 is filled up and completing all inputs.

[0102] On the other hand, when the formatted input shown in drawing 11 is chosen at Step S140, it progresses to Step S200 and the screen shown in drawing 12 is displayed. 111 of drawing 12 is a screen which urges to an input 64 sorts of DNA shown in drawing 5 chosen by the purchaser in format form at a purchaser.

[0103] By inputting 64 sorts of DNA into 111 of drawing 12 in the format form of "GATGGGN1CTCN2N3GTTCAT", a purchaser progresses to Step S210, after expressing arrangement of 64 sorts of DNA in format form.

[0104] The arrangement determination method of 64 sorts of DNA by this format form is explained below.

[0105] In the format form of "GATGGGN1CTCN2N3GTTCAT", N1, N2, and N3 are variables which show the same change, respectively, the portion which has varied among base sequences is shown and the other portion shows the intersection of the base sequence not changing. That is, each variable of N1, N2, and N3 changes with A->G->C->T, respectively.

[0106] Moreover, when three variables N1, N2, and N3 appear simultaneously in one formula like "GATGGGN1CTCN2N3GTTCAT", it changes one by one with N3 to A->G->C->T which is the last (the 3rd) variable. At this time, after it does not change but the last (the 3rd) variable N3 changes with A->G->C->T, other N (the 1st and the 2nd)1 and N2 change one by one. The above-mentioned explanation is explained in detail using drawing 5.

[0107] For example, the 1-4th base sequences of drawing 5 show the example which N3 which is the last (the 3rd) variable changes with A->G->C->T, and does not change while N1 and N2 have been A.

[0108] Next, the 2nd N2 changes with A->G->C->T. That is, the 2nd N2 changes with A->G first, and the 3rd N3 changes with A->G->C->T. For example, N2 changes with A->G and, as for the 5-8th base sequences of drawing 5, N3 shows the example from which it changes with A->G->C->T.

[0109] Then, the 2nd N2 changes with G->C, and the 3rd N3 changes with A->G->C->T. For example, N2 changes with G->C and, as for the 9-12th base sequences of drawing 5, N3 shows the example from which it changes with A->G->C->T. Furthermore it continues, the 2nd N2 changes with C->T, and the 3rd N3 changes with A->G->C->T. For example, N2 changes with C->T and, as for the 13-16th base sequences of drawing 5, N3 shows the example from which it changes with A->G->C->T.

[0110] 64 sorts of DNA which can be expressed with the sequence shown in drawing 5 can be expressed in format form by using the format form of "GATGGGN1CTCN2N3GTTCAT" like the following.

[0111] in addition, when three variables N1, N2, and N3 appear simultaneously in one formula like "GATGGGN1CTCN2N3GTTCAT" in the above-mentioned example It changed one by one with N3 to A->G->C->T which is the last (the 3rd) variable, and at this time, after it did not change but the last (the 3rd) variable N3 changed with A->G->C->T, other N (the 1st and the 2nd)1 and N2 explained the example which changes one by one.

[0112] however, the order to change is not restricted above, for example, it changes one by one with N1 to A->G->C->T which is the first (the 1st) variable, and, as for other N (the 2nd and the 3rd)1 and N2, it is possible at this time various and to take a method and to also make it change, such as not to make it change

[0113] Moreover, although the above-mentioned example explained three cases for the variable to the example, the variable is possible for taking not only three pieces but arbitrary numbers. What is necessary is just to change the change method of the variable in this case based on the view explained above.

[0114] In addition, if there are these three variables in a base sequence like

the above-mentioned example when the intersection of the base sequence of DNA to input shall be specified, the portion which has varied shall be displayed as a variable and this variable shall express A, G, T, and C as explanation was given [ above-mentioned ], 64 sorts of DNA sequence can be specified. Moreover, if there is this two variable of an in a base sequence and it is in four sorts and a base sequence, it is also possible by [ — 16 sorts of DNA sequence can be specified — ] changing a variable to select the base sequence corresponding to a variable.

[0115] Next, the screen shown in drawing 13 is expressed as Step S210. 131 of drawing 13 displays arrangement of 64 sorts of DNA arranged at the well of 64, and 122 is demand \*\*\*\*\* about the input of a check (YES, NO) of arrangement at a purchaser. Drawing 13 shows that the check (YES) of recognition of the arrangement shown in 131 by the purchaser was carried out. After the check of arrangement is completed, it progresses to Step S220.

[0116] On the other hand, when Step S250 is chosen in Step S110, it progresses to Step S250 and the screen shown in drawing 15 is displayed. Drawing 15 shows the selection screen of an ink cartridge in the order conditions and ink-jet method row which were chosen by the purchaser.

[0117] That is, 151 of drawing 15 shows that the ink-jet method was chosen as a method of 100microl and DNA array production equipment by the concentration M of 8micro as a solution state and each amount of DNA as a form of SH, a five prime end, and DNA as a kind of ornamentation of 64 sorts and an end as a kind of DNA.

[0118] Next, a purchaser is 152 of the screen of drawing 15 and chooses the kind of an ink-jet method and ink cartridge. In the example of drawing 15, as an ink-jet method, only an ink cartridge is chosen and the head of A company shows the case where 96 sorts of ink cartridges of BC62 are chosen, as a kind of ink cartridge.

[0119] Next, the screen shown in drawing 16 is expressed as Step S260. The head of A company chosen by the purchaser displays 96 sorts of ink cartridges of BC62, and 161 of drawing 16 shows selection of the area which arranges 64 sorts of DNA, and the input screen of arrangement.

[0120] Next, a purchaser specifies first the well (8x8) of 64 shown in 162 of drawing 16 as area which arranges 64 sorts of DNA according to directions of the screen of drawing 16 of 163. Next, the input method of arrangement is chosen. The example of drawing 16 shows the case where an individual input is chosen.

[0121] Next, at Step S270, the selected input method is investigated, when the individual input shown in drawing 16 is chosen, it progresses to Step S280, and when formatted input is chosen, it progresses to Step S330.

[0122] Next, although not shown in drawing, drawing 9 and a similar screen are expressed as Step S280. The left-hand side of this drawing is the same as 161 of drawing 16, the area 162 which arranges 64 sorts of DNA chosen by the purchaser is displayed, the right-hand side of drawing is the same as 92 of drawing 9, and the selection screen of how to arrange 64 sorts of DNA is displayed.

[0123] Next, a purchaser chooses how it arranges as the area which specified 64 sorts of DNA from arrangement 1-3 like 92 of the screen of drawing 9 according to this drawing. That is, when arrangement 1 is chosen, it progresses to Step S300, when arrangement 2 is chosen, it progresses to Step S310, and when arrangement 3 is chosen, it progresses to Step S320. In addition, since each operation performed at Step S300, Step S310, and Step S320 is the same as that of each operation of Step S170 and Step S180 which were already explained, and Step S190, explanation here is omitted.

[0124] On the other hand, when formatted input is chosen, it progresses to Step S330 and the screen shown in drawing 12 is expressed as Step S270. 111 of drawing 12 is urging 64 sorts of DNA shown in drawing 5 chosen by the purchaser to the input in format form. Then, by the same method explained at Step S200, by inputting 64 sorts of DNA into 111 of drawing 12 in the format form of "GATGGGN1CTCN2N3GTTCAT", a purchaser progresses to Step S350, after expressing arrangement of 64 sorts of DNA in format form.

[0125] Next, the arrangement 4 of 64 sorts of DNA arranged at the well of 64 shown in drawing 13 is expressed as Step S350. Furthermore, the screen which requires the input of a check (YES, NO) of arrangement shown in 132 is displayed. Drawing 13 indicates chosen that it is easy to be the displayed arrangement (YES). After DNA with which each well of arrangement 4 is filled up is specified and all inputs are completed, it progresses to Step S220.

[0126] Next, at Step S220, the order contents of the synthetic DNA determined by the purchaser are transmitted to the WWW server 70 of a successful-bidder side system.

[0127] Next, at Step S230, the order contents determined by the purchaser are outputted to the DNA injector 50 based on the directions from the WWW server 70. If these outputted order contents are displayed on the DNA injector 50 or it is transmitted to the operator of the DNA injector 50 by printing etc., an operator pours in using the DNA injector 50 on the conditions which had the synthetic DNA specified out of the synthetic DNA saved specified. For example, the set of the specified synthetic DNA is poured in into the well of a microplate by arrangement of the turn specified in the amount of specification.

[0128] Next, at Step S240, the synthetic DNA produced based on the contents of order of a purchaser is sent to \*\*\*\*\*. Thus, a purchaser can receive the synthetic DNA produced by the specified method.

[0129] As explained above, according to this operation form, a purchaser accesses a successful-bidder computer using a network, an order for a very minute amount synthetic DNA is placed by inputting the array of a synthetic DNA, and the method of coming to hand is offered. The ordered synthetic DNA is sent to the origin of a purchaser into several by development of the overseas flow method of these days, and the point which it is not only cheaper than the method which each researcher orders, respectively and is compounding, but can come to hand early is mentioned as a feature now.

[0130] Moreover, DNA of the amount which each researcher needs, respectively by compounding collectively the composition of DNA which has the various arrays which the researcher of the former many was performing separately if needed so much according to this operation form is compounded with high composition yield and high refining yield. The selling system of the synthetic DNA which offers quickly only the DNA of a kind required for each researcher who needs DNA which has the various arrays furthermore compounded, and an amount can be offered.

[0131] Consequently, it is effectively utilizable by providing the researcher of \*\* with DNA which remained without purchasing a synthetic powder with each [ the former and ] respectively expensive researcher since only an initial complement can purchase DNA which many researchers need, compounding DNA more than an initial complement unavoidably so much, and using it, and was being thrown away vainly. Moreover, each researcher can also cut down the working hours which were compounding a lot of DNA more than DNA to need himself.

[0132] Namely, it sets to the system which supplies the synthetic DNA of a predetermined array according to the order given to a successful bidder from a purchaser. A successful-bidder side computer and a purchaser side computer are

connected through a network. to a successful-bidder side computer Information, such as a base sequence of the synthetic DNA which can be supplied and existence of the chemical modification of an end, and a kind, is prepared. to a purchaser side computer The function which carries out the selection directions of the synthetic DNA which corresponds from the synthetic DNA list of successful-bidder sides is prepared through the network. to a successful-bidder side computer These selection directions can be incorporated through a network and the set with the base sequence specified by these selection directions of a synthetic DNA can be sent to a purchaser.

[0133] Moreover, if a purchaser side inputs the base sequence of desired DNA, and the information about chemical modification rather than carries out the selection directions of the DNA from the DNA list of successful-bidder sides, the function which chooses and displays the synthetic DNA which corresponds from the synthetic DNA list which the computer by the side of a successful bidder holds automatically based on this display can also be added.

[0134] Moreover, as a container divided into two or more wells, the head for ink jet printers with a microplate, an ink cartridge, and an ink cartridge is applied, and sale with the gestalt which filled up the volume which the purchaser directed with the concentration which the purchaser directed into the solution of the solution composition which is in the state where the synthetic DNA solution was hardened by drying, or a purchaser directs can be performed.

[0135] Furthermore, it can link to the address of the stock solution of the selected synthetic DNA, and the function poured in on the well of the container which inhaled the amount of orders by the micropipette etc. from the stock solution, and was divided into two or more predetermined wells can also be added.

[0136] Moreover, if this synthetic DNA set with which the purchaser was indicated by the computer of a successful bidder through the network by registering as a synthetic DNA set which has a base sequence required for specific gene diagnosis is ordered, the solution of a synthetic DNA set can also be filled up with and sent to the area where it was specified on the container divided into two or more wells which the purchaser specified. Moreover, the gene set about major histocompatibility nature complex is included in this synthetic DNA set as a set of a base sequence required for specific gene diagnosis.

[0137] Moreover, sale with the gestalt which filled up DNA with this operation gestalt into the cartridge for ink jets suitable for the above-mentioned DNA array creating method, or sale of the DNA solution in the state where the head for ink jets which the cartridge for ink jets unified was filled up with the DNA solution is also enabled.

[0138]

[Other operation gestalten] In addition, even if it applies this invention to the system which consists of two or more devices (for example, a host computer, an interface device, a reader, a printer, etc.), you may apply it to the equipments (for example, a copying machine, facsimile apparatus, etc.) which consist of one device.

[0139] Moreover, the purpose of this invention cannot be overemphasized by being attained by supplying the storage (or record medium) which recorded the program code of the software which realizes the function of the operation gestalt mentioned above to a system or equipment, and reading and performing the program code with which the computer (or CPU and MPU) of the system or equipment was stored in the storage. In this case, the function of the operation gestalt which the program code itself read from the storage

mentioned above will be realized, and the storage which memorized the program code will constitute this invention. Moreover, being contained when the function of the operation gestalt which performed a part or all of processing that the operating system (OS) which is working on a computer is actual, based on directions of the program code, and the function of the operation gestalt mentioned above by performing the program code which the computer read is not only realized, but was mentioned above by the processing is realized cannot be overemphasized.

[0140] Furthermore, being contained, when the function of the operation gestalt which performed a part or all of processing that CPU with which the expansion card and expansion unit are equipped is actual, and was mentioned above by the processing is realized based on directions of the program code, after the program code read from the storage is written in the memory with which the expansion unit connected to the expansion card inserted in the computer or the computer is equipped cannot be overemphasized.

[0141] When applying this invention to the above-mentioned storage, the program code corresponding to the flow chart (shown in drawing 2 A and drawing 2 B) explained previously will be stored in the storage.

[0142]  
[Effect of the Invention] As explained above, according to this invention, the selling system of the synthetic DNA which provides quickly and cheaply only with a required kind and a required amount each researcher who needs DNA which has the various compound arrays and its control method, successful-bidder side equipment, and its control method can be offered.

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[Translation done.]

**\* NOTICES \***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

[Drawing 1] It is the selling system \*\*\*\* view of the synthetic DNA using the network of 1 operation gestalt concerning this invention.

[Drawing 2 A] It is the flow chart which shows from order of a synthetic DNA to acquisition.

[Drawing 2 B] It is the flow chart which shows from order of a synthetic DNA to acquisition.

[Drawing 3] It is drawing of an example showing the appointed area of a microplate.

[Drawing 4] It is drawing showing the example of 64-sort DNA arrangement.

[Drawing 5] It is drawing showing the example of 64-sort DNA sequence.

[Drawing 6] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 7] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 8] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 9] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 10] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 11] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 12] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 13] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 14] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 15] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 16] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 17] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Drawing 18] A purchaser is drawing showing the homepage which places an order for a synthetic DNA.

[Description of Notations]

10 Network

20 Purchaser Side Computer

30 DNA Pouring Control Section

40 1st Storage

50 DNA Injector

60 Synthetic DNA Set

70 Successful-Bidder Side Server

80 2nd Storage

100 System by the side of Purchaser

200 System by the side of Successful Bidder

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[Translation done.]

**\* NOTICES \***

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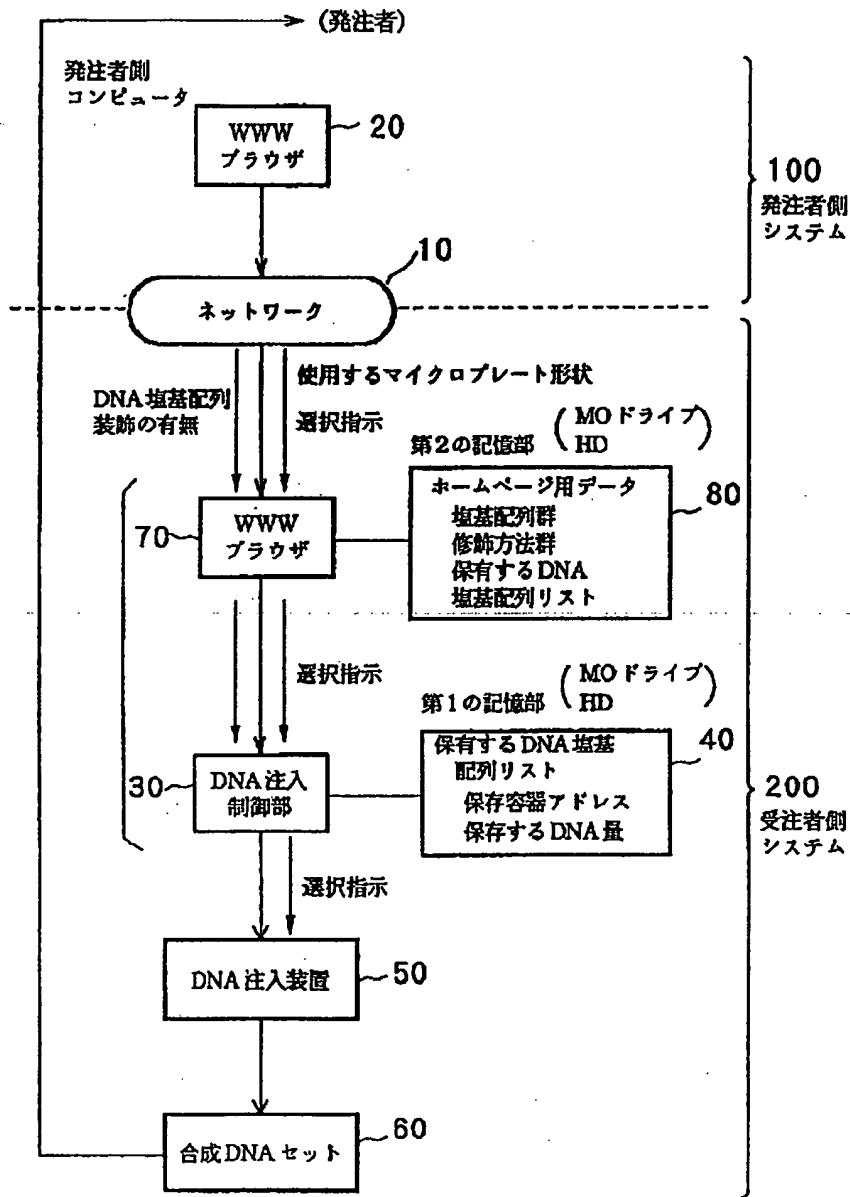
1. This document has been translated by computer. So the translation may not reflect the original precisely.

2. \*\*\*\* shows the word which can not be translated.

3. In the drawings, any words are not translated.

# DRAWINGS

[Drawing 1]

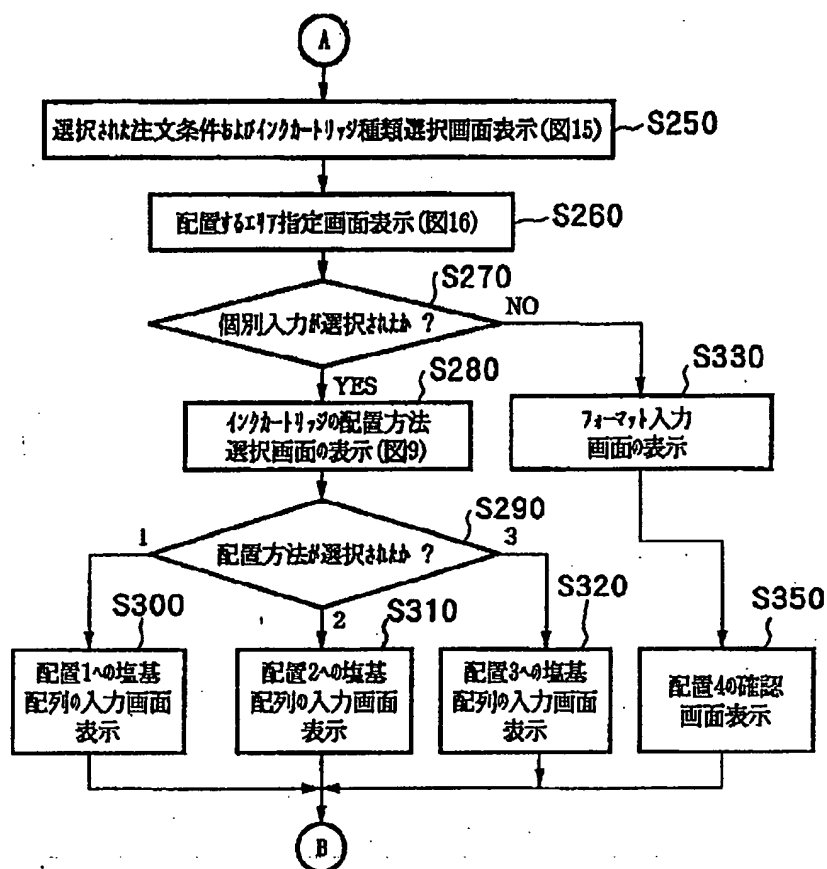


合成DNA販売システム

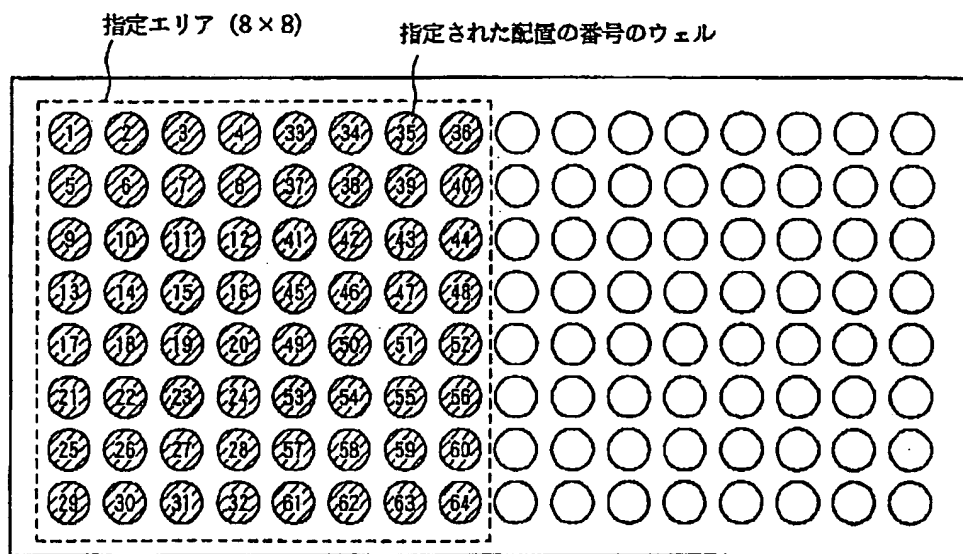
[Drawing 12]

111 { 塩基配列を入力して下さい  
GATGGGN<sub>1</sub>CTCN<sub>2</sub>N<sub>3</sub>GTTCAT  
N<sub>1</sub>, N<sub>2</sub>, N<sub>3</sub> : 変化するもの

[Drawing 2 A]

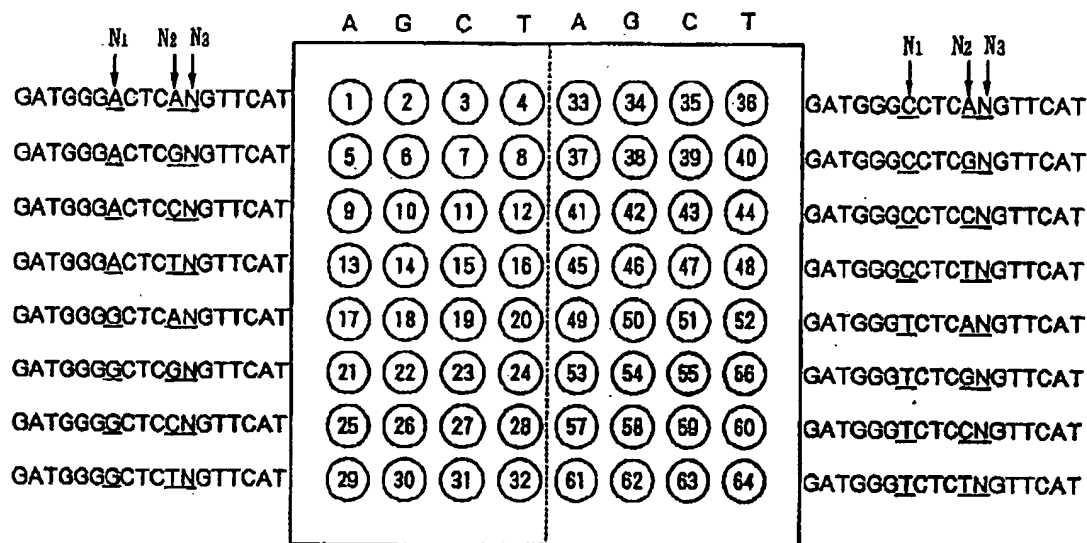


[Drawing 3]



B社128穴マイクロプレートと指定エリア (8×8)

[Drawing 4]



64種のDNA配置図の例

[Drawing 6]

受注者用ホームページ

51	注文するDNAの種類	<input checked="" type="checkbox"/> 64 種	<input type="checkbox"/> 遺伝子診断セット	
52	末端の修飾の種類	<input type="checkbox"/> なし <input type="checkbox"/> NH <sub>2</sub> <input checked="" type="checkbox"/> SH <input type="checkbox"/> ビオチン <input type="checkbox"/> 色素	<input type="checkbox"/> 5' 末端 <input checked="" type="checkbox"/> 3' 末端	<input type="checkbox"/> 乾燥 <input checked="" type="checkbox"/> 乾固
53	DNAの形態	<input type="checkbox"/> 溶液	<input checked="" type="checkbox"/> 乾固	
54	DNA量	<input checked="" type="checkbox"/> 0.075 OD 又は	<input type="checkbox"/> μM <input type="checkbox"/> μg	
55	DNAアレイ作製装置の方式	<input checked="" type="checkbox"/> ピン方式 <input type="checkbox"/> インクジェット方式 <input type="checkbox"/> 使用しない		

[Drawing 7]

61	DNA	64 種		
	5'末端	SH基	修飾	
	乾固	乾固で	0.075 OD	
	ピン方式			
62	マイクロプレートの種類			
		128 well	384 well	
	<input type="checkbox"/> A社	<input type="checkbox"/>	<input type="checkbox"/>	
	<input checked="" type="checkbox"/> B社	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/> C社	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/> D社	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/> E社	<input type="checkbox"/>	<input type="checkbox"/>	

# [Drawing 17]

実用者用ホームページ

171 希望するDNAセットの塩基配列を入力して下さい。

172 ☐ アルファベット入力

173 ☐ 遺伝子がコードする蛋白質の名称入力

174 ☐ 遺伝子断片用塩基配列セットの名称入力

175 ☐ 保有しているDNAセットのリストを表示してほしい

# [Drawing 5]

## 64種DNAの塩基配列の例

	N1	N2	N3		N1	N2	N3		
1.	SH	-	GATGGG	ACTCAAGTTCAT	33.	SH	-	GATGGG	CTCAAGTTCAT
2.	SH	-	GATGGG	ACTCAGGTTTCAT	34.	SH	-	GATGGG	CTCAGGTTTCAT
3.	SH	-	GATGGG	ACTCACGTTTCAT	35.	SH	-	GATGGG	CTCACGTTTCAT
4.	SH	-	GATGGG	ACTCATGTTTCAT	36.	SH	-	GATGGG	CTCATGTTTCAT
5.	SH	-	GATGGG	ACTCGAGTTCAT	37.	SH	-	GATGGG	CTCGAGTTCAT
6.	SH	-	GATGGG	ACTCGGGTTCAT	38.	SH	-	GATGGG	CTCGGGTTCAT
7.	SH	-	GATGGG	ACTCGGTTTCAT	39.	SH	-	GATGGG	CTCGGTTTCAT
8.	SH	-	GATGGG	ACTCGTGTTTCAT	40.	SH	-	GATGGG	CTCGTGTTTCAT
9.	SH	-	GATGGG	ACTCCAGTTCAT	41.	SH	-	GATGGG	CTCCAGTTCAT
10.	SH	-	GATGGG	ACTCCGGTTCAT	42.	SH	-	GATGGG	CTCCGGTTCAT
11.	SH	-	GATGGG	ACTCCGTTTCAT	43.	SH	-	GATGGG	CTCCGTTTCAT
12.	SH	-	GATGGG	ACTCCTGTTTCAT	44.	SH	-	GATGGG	CTCCTGTTTCAT
13.	SH	-	GATGGG	ACTCTAGTTCAT	45.	SH	-	GATGGG	CTCTAGTTCAT
14.	SH	-	GATGGG	ACTCTGGTTCAT	46.	SH	-	GATGGG	CTCTGGTTCAT
15.	SH	-	GATGGG	ACTCTCGTTCAT	47.	SH	-	GATGGG	CTCTCGTTCAT
16.	SH	-	GATGGG	ACTCTTGTTTCAT	48.	SH	-	GATGGG	CTCTTGTTTCAT
17.	SH	-	GATGGG	GCTCAAGTTCAT	49.	SH	-	GATGGG	TCTCAAGTTCAT
18.	SH	-	GATGGG	GCTCAGTTCAT	50.	SH	-	GATGGG	TCTCAGTTCAT
19.	SH	-	GATGGG	GCTCACGTTTCAT	51.	SH	-	GATGGG	TCTCACGTTTCAT
20.	SH	-	GATGGG	GCTCATGTTTCAT	52.	SH	-	GATGGG	TCTCATGTTTCAT
21.	SH	-	GATGGG	GCTCGAGTTCAT	53.	SH	-	GATGGG	TCTCGAGTTCAT
22.	SH	-	GATGGG	GCTCGGTTCAT	54.	SH	-	GATGGG	TCTCGGTTCAT
23.	SH	-	GATGGG	GCTCGGTTTCAT	55.	SH	-	GATGGG	TCTCGGTTTCAT
24.	SH	-	GATGGG	GCTCGTGTTTCAT	56.	SH	-	GATGGG	TCTCGTGTTTCAT
25.	SH	-	GATGGG	GCTCCAGTTCAT	57.	SH	-	GATGGG	TCTCCAGTTCAT
26.	SH	-	GATGGG	GCTCCGGTTCAT	58.	SH	-	GATGGG	TCTCCGGTTCAT
27.	SH	-	GATGGG	GCTCCGTTTCAT	59.	SH	-	GATGGG	TCTCCGTTTCAT
28.	SH	-	GATGGG	GCTCCTGTTTCAT	60.	SH	-	GATGGG	TCTCCTGTTTCAT
29.	SH	-	GATGGG	GCTCTAGTTCAT	61.	SH	-	GATGGG	TCTCTAGTTCAT
30.	SH	-	GATGGG	GCTCTGGTTCAT	62.	SH	-	GATGGG	TCTCTGGTTCAT
31.	SH	-	GATGGG	GCTCTCGTTCAT	63.	SH	-	GATGGG	TCTCTCGTTCAT
32.	SH	-	GATGGG	GCTCTTGTTTCAT	64.	SH	-	GATGGG	TCTCTTGTTTCAT

# [Drawing 8]

151	{	DNA 64種
		5'末端 SH基 体積
		溶液状態で 濃度 8 μM 液量 100 μl
		インクジェット方式方式 <input type="checkbox"/> インクカートリッジ <input type="checkbox"/> インクカートリッジ付きヘッド
152	{	インクカートリッジの種類
		<input checked="" type="checkbox"/> A社 <input type="checkbox"/> B社 <input type="checkbox"/> C社
		ヘッド <input checked="" type="checkbox"/> BC62 <input type="checkbox"/>
		インクカートリッジの種類 <input type="checkbox"/> 24種 <input type="checkbox"/> 48種 <input checked="" type="checkbox"/> 96種 <input type="checkbox"/> 192種

[Drawing 16]

162 (8 × 8)	{	64種を指定エリアを指定して下さい
		<input checked="" type="checkbox"/> 個別入力 <input type="checkbox"/> フォーマット入力

161

163

A社BC62ヘッド96種類

[Drawing 18]

保有しているDNAセットのリストです。

181 1) 蛋白質の名称リスト

蛋白質 A	蛋白質 B	蛋白質 C	蛋白質 D	蛋白質 E
蛋白質 F	蛋白質 G	蛋白質 H	蛋白質 I	蛋白質 J

182 2) 遺伝子診断用塩基配列セットリスト

遺伝子 A	遺伝子 B	遺伝子 C	遺伝子 D	遺伝子 E
遺伝子 F	遺伝子 G	遺伝子 H	遺伝子 I	遺伝子 J

183 3) 塩基配列リスト

塩基配列 A	塩基配列 B	塩基配列 C	塩基配列 D	塩基配列 E
塩基配列 F	塩基配列 G	塩基配列 H	塩基配列 I	塩基配列 J

184 希望するDNAリストセットを入力して下さい

入力例: 蛋白質 A

[Translation done.]